

Given $Z(a,b,c,d) = \sum m(1,4,6,7,8,9,10,11,15) + \sum d(0,2)$

- Use a K-map to find the minimum Product of Sums (PoS) for Z.
- Use a K-map to find the minimum Sum of Products (SoP) for Z.
- Indicate the essential Prime Implicants in your answer of part b.

②

	ab	00	01	11	10
cd	00	X	1	0	1
	01	1	0	0	1
	11	0	1	1	1
	10	X	1	0	1

④

$$Z = a'd' + b'c' + ab' + bcd$$

③

	ab	00	01	11	10
cd	00	X	1	0	1
	01	1	0	0	1
	11	0	1	1	1
	10	X	1	0	1

⑤

$$Z' = abd' + bc'd + a'b'c$$

$$Z = (a' + b' + d)(b' + c + d')(a + b + c')$$

① essentials =